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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,972	11/26/2001	Shih-Chien Lin	06836.0005.NPUS00	5338

22930 7590 10/29/2004

HOWREY SIMON ARNOLD & WHITE LLP
ATTEN: MARGARET P. DROSOS, DIRECTOR OF IP ADMIN
2941 FAIRVIEW PARK DR, BOX 7
FALLS CHURCH, VA 22042

EXAMINER

VO, HUYEN X

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/991,972	Applicant(s) LIN, SHIH-CHIEN	
	Examiner Huyen Vo	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/26/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admitted prior art.
3. Regarding claims 1, 10, and 22, applicant's admitted prior art discloses a speech coder and method for compressing a speech signal, the speech coder comprising:
 - means for receiving a predictor coefficient as input (*element 220 in figure 2*);
 - means for storing the predictor coefficient in a first temporary storage buffer (*element 220 in figure 2*);
 - means for determining a reflection coefficient from the predictor coefficient stored in the first temporary storage buffer (*element 240 in figure 2*);
 - means for calculating a multiplication factor (*the term n_e in element 275 in figure 2*);
 - means for recursively calculating a numerator and multiplying the numerator by the multiplication factor (*equation 1 in page 4, where a term is divided by n_e is the same as a term is multiplied by $1/n_e$, and the end result is the same*); and

Art Unit: 2655

means for stopping the recursive calculation after it has been performed a predetermined number of times (*elements 235 or 270 in figure 2, stop when condition in these elements is satisfied*), wherein the multiplication factor is determined outside the recursive calculation (*since n_e is constant when for all $j < I$, therefore, n_e can be placed outside/inside the loop without affecting the result*).

4. Regarding claims 19, applicant's admitted prior art discloses a method of speech coding for compression of a speech signal, the method comprising:

receiving a predictor coefficient as input (*element 220 in figure 2*);

storing the predictor coefficient in a first temporary storage buffer (*element 220 in figure 2*);

determining a reflection coefficient from the predictor coefficient stored in the first temporary storage buffer (*element 240 in figure 2*);

calculating a multiplication factor from a denominator, wherein the multiplication factor is defined by the equation: $\text{Divd} = 0x4000/n_{\text{sub}} \cdot e$, wherein Divd is the multiplication factor (see *claim 17*); 0x4000 is a hexadecimal representation of 0.5; and n_e is the denominator, which represents a normalized and amplified value of a residue of the signal (*section [0060] suggests that the denominator must be greater than 4000H or decimal number 0.5. Equation 1 shows n_e being the denominator for the case that the decimal number is equal 1; that is $1/n_e$. However, in the case the decimal number is equal to .5 or 4000H, then the denominator would become $2n_e$ or the term $1/n_e$ would become $.5/n_e$*);

recursively calculating a numerator and multiplying the numerator by the multiplication factor (*equation 1 in page 4, where a term is divided by n_e is the same as a term is multiplied by $1/n_e$, and the end result is the same*), wherein the numerator is defined by the equation: $\text{temp} = (b1[j] - k[i] * b1[i-j])$, wherein i is an integer value; j is an integer value; temp is the second temporary storage buffer, for storing the numerator; $b1[j]$ is a third temporary storage buffer, for storing values of the first temporary storage buffer; and $b1[i-j]$ is a fourth temporary storage buffer, for storing values of the first temporary storage buffer (*the operation of figures 2*); and

stopping the recursive calculation after it has been performed a predetermined number of times (*elements 235 or 270 in figure 2, stop when condition in these elements is satisfied*), wherein the multiplication factor is determined outside the recursive calculation (*since n_e is constant when for all $j < l$, therefore, n_e can be placed outside/inside the loop without affecting the result*).

5. Regarding claims 2, 11, and 23, applicant's admitted prior art further teach that $\text{temp} = (b1[j] - k[i] * b1[i-j])$, wherein i is an integer value; j is an integer value; temp is a second temporary storage buffer, for storing the numerator; $b1[j]$ is a third temporary storage buffer, for storing values of the first temporary storage buffer; and $b1[i-j]$ is a fourth temporary storage buffer, for storing values of the first temporary storage buffer (*the operation of figures 2*).

Art Unit: 2655

6. Regarding claims 3-7, 12-16, 20, and 24-28, applicant's admitted prior art further discloses a speech coder and method of claims 1, 10, and 22, wherein the means for determining the reflection coefficient includes amplification of the predictor coefficient stored in the first temporary storage buffer (*Section [0057]*), wherein the means for calculating the multiplication factor includes means for determining a denominator (*sections [0057]-[0061]*), the speech coder and method further comprising means for amplifying said denominator to its largest and most accurate value (*section [0060]*), the speech coder and method further comprising means for performing a fixed-point division operation using the denominator (*section [0060]*), and wherein the means for performing the fixed-point division operation includes means for taking an inverse of the denominator (*equation 1 in section [0059], a term is divided by n_e is the same as a term is multiplied with $1/n_e$, simple mathematical manipulation*).

7. Regarding claims 8-9, 17-18, 21, and 29-30, applicant's admitted prior art further discloses a speech coder and method of claims 7, 16, and 28, wherein the means for taking the inverse of the denominator is defined by the equation: $Divd = 0x4000/n_{sub}$, wherein $Divd$ is the multiplication factor; $0x4000$ is a hexadecimal representation of 0.5; and n_e is the denominator, which represents a normalized and amplified value of a residue of the signal (*section [0060] suggests that the denominator must be greater than 4000H or decimal number 0.5. Equation 1 shows n_e being the denominator for the case that the decimal number is equal 1; that is $1/n_e$. However, in the case the decimal number is equal to .5 or 4000H, then the denominator would become $2n_e$ or*

Art Unit: 2655

the term $1/n_e$ would become $.5/n_e$, and means for amplifying the multiplied numerator and multiplication factor (sections [0057]-[0060]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen (US Patent No. 5327520) and Moriya et al. (US Patent No. 5732188) disclose a CELP coding method that is considered pertinent to the claimed invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo

October 14, 2004


SUSAN MCFADDEN
PRIMARY EXAMINER